



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,094	08/29/2001	Kazunobu Kuwazawa	81751.0017	7672
26021 7590 12/02/2003				
HOGAN & HARTSON L.L.P. 500 S. GRAND AVENUE SUITE 1900 LOS ANGELES, CA 90071-2611				
EXAMINER SEFER, AHMED N				
ART UNIT 2826		PAPER NUMBER		

DATE MAILED: 12/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.	Applicant(s)	
09/943,094	KUWAZAWA, KAZUNOBU	
Examiner	Art Unit	
A. Sefer	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTER STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 153).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-11, 13-19 and 32-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-19 and 32-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendment filed on September 10, 2003 has been entered. Claims 12 and 20-31 have been cancelled and new claims 32-44 have been added.

### ***Claim Objections***

2. Claim 17 is objected to because of the following informalities: The limitation "wherein the first electrode connected electrically to a conductive layer provided above the semiconductor layer the semiconductor layer" should read "wherein the first electrode connected electrically to a conductive layer provided above the semiconductor layer". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 33, 35 and 37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation "the second conductive layer/conductive layer/second electrode is formed independently of the contact layer" is not disclosed in the specification to enable one skilled in the art to make and/or use the invention. Without this information it would take undue experimentation to make and use the claimed invention.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in –

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

6. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Christensen et al. USPN 6,121,659.

Christensen et al. disclose in figs. 1-8 a semiconductor substrate 12 having a first conductive layer 24A/24B formed from an impurity layer (as in claim 2) or functioning as a wiring layer (as in claim 3) functioning as a resistance layer (as in claim 4) provided therein; an insulation layer 14 provided above the semiconductor substrate; a semiconductor layer provided above the insulation layer; and a second conductive layer 38 disposed in contact via stud 40/43 with the semiconductor layer, and electrically connected to the first conductive layer; a contact layer 40/43 provided in a connection hole (unnumbered), the contact layer electrically connecting the first conductive layer and the second conductive layer.

7. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Tiwari USPN 6,600,173.

Tiwari discloses in fig. 7 a semiconductor substrate 20 having a first conductive layer D4 formed from an impurity layer (as in claim 2) provided therein; an insulation layer 30/40 provided above the semiconductor substrate; a semiconductor layer 14 provided above the insulation layer; and a second conductive layer 34 disposed in contact with the semiconductor

layer, and electrically connected to the first conductive layer; a contact layer provided in a first connection hole (unnumbered), the contact layer electrically connecting the first conductive layer and the second conductive layer.

8. Claims 1-6, 32, 33 and 38-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyake (JP 10-41511)

Miyake discloses in figs. 9 and 18 a semiconductor substrate having a first conductive layer 3/5 formed from an impurity layer (as in claim 2) or functioning as a wiring layer (as in claim 3) functioning as a resistance layer (as in claim 4) or imbedded in the semiconductor substrate (as in claim 32) provided therein; an insulation layer 6 provided above the semiconductor substrate; a semiconductor layer including an element isolation region 19/11 having a second connection hole therein (as in claim 38) provided above the insulation layer; and a second conductive layer 22 formed independently of the contact layer (as in claim 33) or provide above (as in claim 39) or in (as in claim 40) the semiconductor layer disposed in contact with the semiconductor layer, and electrically connected to the first conductive layer; a contact layer 10 provided in a connection hole 9 extending into the semiconductor substrate (as in claim 5), the contact layer electrically connecting the first conductive layer and the second conductive layer.

As for claim 6, Miyake discloses (see fig. 2-11) a side wall provided in the connection hole 9.

9. Claims 7-9, 11, 13, 34, 35 and 41-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyake (JP 10-41511)

Miyake discloses in figs. 9 and 18 a semiconductor device comprising a semiconductor substrate or p-type substrate (as in claim 11) having a contact region imbedded in the semiconductor substrate (as in claim 34) formed from an impurity layer (as in claim 8) or p-type contact region 5 (as in claim 10) or n-type contact region 3 (as in claim 11) provided therein; an insulation layer 6 provided above the semiconductor substrate; and a semiconductor layer including an element isolation region 19/11 having a second connection hole therein (as in claim 41) provided above the insulation layer; and a conductive layer 22 formed independently of the contact layer (as in claim 35) or provided above (as in claim 42) or in (as in claim 43) the semiconductor layer disposed in contact with the semiconductor layer, and has a function of allowing charge to flow into the semiconductor substrate, said contact region being electrically connected to said conductive layer; and a contact layer 10 provided in a first connection hole 9, the contact layer electrically connecting the first conductive layer and the second conductive layer.

As for claim 9, Miyake discloses a pn junction formed by the contact region and the semiconductor substrate.

As for claim 13, Miyake discloses (see fig. 2-11) a side wall provided in the connection hole 9.

10. Claims 7-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Christensen et al. USPN 6,121,659.

Christensen et al disclose (see figs. 1-6 and col. 4, lines 4-18 and 39-45) a semiconductor device comprising a semiconductor substrate or n-type substrate (as in claim 10) or p-type substrate (as in claim 11) having a contact region 24A/24B formed from an impurity layer (as in

claim 8) or p-type contact region (as in claim 10) or n-type contact region (as in claim 11) provided therein; an insulation layer 305 provided above the semiconductor substrate; and a semiconductor layer 306 provided above the insulation layer; and a conductive layer 38 disposed in contact via stud 40/43 with the semiconductor layer, and has a function of allowing charge to flow into the semiconductor substrate, said contact region being electrically connected to said conductive layer; and a contact layer provided in a first connection hole (unnumbered), the contact layer electrically connecting the first conductive layer and the second conductive layer.

As to claim 9, Christensen et al disclose a pn junction formed by the contact region and the semiconductor substrate.

11. Claims 14-19, 36, 37 and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyake (JP 10-41511)

Miyake discloses in figs. 9 and 18 a semiconductor substrate having a first electrode 3/5 formed from a first impurity layer (as in claim 15) or imbedded in the semiconductor substrate (as in claim 36) provided therein; an insulation layer 6 provided above the semiconductor substrate; a semiconductor layer provided above the insulation layer; and a semiconductor layer provided above the insulation layer, the semiconductor layer having a second electrode 17/18 formed from a second impurity layer (as in claim 16) or formed independently of the contact layer (as in claim 37) provided therein, wherein the first electrode is connected electrically to a conductive layer 22 disposed in contact with the semiconductor layer; and wherein the first electrode, the second electrode, and the insulation layer are configured as a capacitive element.

As to claim 17, Miyake discloses a first electrode connected electrically to a conductive layer provided above the semiconductor layer.

As to claim 18, Miyake discloses a connection hole 9 for connecting the first conductive layer to the second conductive layer, and wherein a contact layer is provided in the connection hole.

As for claim 19, Miyake discloses (see fig. 2-11) a side wall provided in the connection hole 9.

As to claim 44, Miyake discloses a first electrode connected electrically to a conductive layer provided in the semiconductor layer.

### *Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wollesen USPN 6,215,155 disclose an SOI CMOS that establishes ohmic contact with impurity region disposed below a buried oxide layer.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 2826

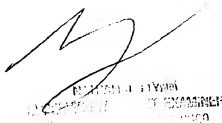
however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (703) 605-1227.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on (703) 308-6601.

ANS

November 22, 2003



NATHAN J. FLYNN  
SUPERVISOR  
ART UNIT 2826